U CAN with BEAKMAN JAX

by Jok Church

Hey Beakman, Will we ever be able to transport things like they do in "Star Trek"?

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Questions, name & address

Google: Uncertainty Principle

**Werner Heisenberg
1901-1976**

Mr. Heisenberg discovered the Uncertainty Principle. Usually it is called the *Heisenberg Principle* as a way of honoring him. Mr. Heisenberg proved that every time you measure where something is, or how fast it is going, you change the thing you're measuring.

He won the 1932 Nobel Prize in Physics for discovering it.

Imagine that you are beside a swimming pool and you want to know the temperature of the water.

You have a thermometer in your pocket. You pull out the thermometer and put it into the water. When you lift it out, you see that the water is 84°.

Dear Ronny,
Sometimes sci-fi predicts the future. Other times, it's just good entertainment.

"Star Trek's" transporter may be the second of those two.

The laws of the universe, which are usually called physics, could get in the way of Scotty beaming up (or energizing) anyone or anything. And you can't just ignore the laws of the universe.

Beakman
Beakman Place

OK, let's start over except you are now a giant, 40 stories tall, and the swimming pool is now as small as a postage stamp.

When you pull the thermometer out of your pocket, it will be about 96° - near your body temperature. It's also huge – as big as a small building.

When you put it into the tiny, stamp-sized pool, the warmer thermometer will raise the temperature of the water. By measuring something, you would have changed it.

Because we always change the things we measure, we can't really know exactly where anything really is, which means we can't take apart something and know exactly where to move it to.

With big stuff it's not much of a problem. But as things get small, like subatomic-particle-small, it's a bigger and bigger problem.

"Star Trek's" transporters have a part called the Heisenberg Compensator that takes care of that measuring things problem. But that part does not really exist; it's a part of the story, the *fiction* of science fiction.

A Heisenberg Compensator might not be possible to invent, and if it isn't, we wouldn't be able to *beam up* or *beam down* anyone or anything.